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CORNING INCORPORATED  
SP-TI-3-1  
CORNING, NY 14831

EXAMINER

HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/675,721

Applicant(s)

BORRELLI ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 16-19 and 25-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-19, 25-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-19 and 25-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The independent claims have been amended to recite that the glass body is not hydrogen loaded. This new limitation is indefinite as to what it requires. First, there is no explicit definition as to what is meant by "hydrogen loaded". Usually, one of ordinary skill would have a pretty good idea what is meant by this. However, page 9, lines 26-28 indicates that there is "most preferably >500ppm" OH and page 10, line 32 refers to a level ">800 ppm". This indicates that Applicant wishes there to be hydrogen in the glass composition: one could construe this to be an invitation to place even more hydrogen into the glass. In the present Response, it is argued that Atkins has hydrogen loading. However, Examiner looked at figure 1 of Atkins '427 and noticed that composition 11 has a molecular hydrogen content of about 800 ppm.

If the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement, a rejection of the claim under 35 U.S.C.112, second paragraph would be appropriate. See *Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470, 28 USPQ2d 1190, 1195 (Fed. Cir.1993).

One of ordinary skill would not understand how to avoid infringement. Namely, to practice Applicant's preferred invention, one has to have hydrogen present during some phase of the method. This is a type of "hydrogen-loading". One of ordinary skill

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might wish to practice an method which provides a glass that was created in a high-hydrogen environment. This artisan would have no way of knowing if such would infringe on Applicant's invention which suggests there should be a lot of hydrogen (in the hydroxyl form) - or if this constitutes "hydrogen loading" and thus does not infringe. In other words: one of ordinary skill would find it impossible to determine what sort of hydrogen-introductions techniques infringe (if any), and what sorts of hydrogen-introduction techniques do not infringe.

It is not understood what is meant by "bulk glass substrate". The terms "bulk" and "substrate" are usually mutually exclusive. Because something in bulk does not have any particular shape - and a substrate is usually something that has a particular shape. One of ordinary skill would be unclear how to interpret this term.

Claim 44: there is no antecedent basis for "the silica-based glass". It is noted that one can create a bulk glass substrate (that has germania) "from a silica-based material" that has no germania. For example: this creation can be by commingling streams of germania soot and silica soot. Claim 44 needs to more clearly indicate whether it is referring to the "glass substrate" or the "material" which is free of germania.

Claim 39 is not understood - because it requires three steps of providing the glass body. If it does not provide thrice, then it is unclear if the other steps are not also required thrice.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 39-41 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 40-41 require that the core of the waveguide to be at least 1 cm from each surface. The specification does not support such a narrow limitation. First, examiner could find no support. Second, Figures 9A-9E show that the waveguides actually intersect the two surfaces - they are a distance of 0 cm from the two end surfaces. Third, such a waveguide would be nearly non-usable, because of the difficulty in getting a light signal to the waveguide that is 1 cm from the end.

Claim 39: there is no support for the invention of claim 39: First, Examiner could find no literal support. Looking at the specification, there is support for the "multiplexing region" being formed - but there is no indication that it is done by the method of claim 25. Moreover, claim 39 requires that the method claim 25 be repeated 3 times - and thus the step of providing the glass body must occur three times.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 25, 34, 37-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Cocito 6209356.

The figures of Cocito clearly show the invention. 13 is the interior with a homogenous composition. 9 is the laser beam. 11 is the lens. The relative motion, is the motion of the fiber. From figure 2, one can see that the glass is cladded on the top and the bottom by the original composition.

Claims 34 and 37: see col. 2, line 49.

Claim 38 is met in at least two different ways. First, from figure 3, there is shown two cores that are perpendicular to each other. It is clear that any light is coupled between both of them. The second way: One can arbitrarily divide the fiber into two lengths - the first length is the first guide, the second length is the second guide.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 26, 29-33, 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cocito.

Claim 26: The claim does not state when the two planes must not be parallel. It would have been obvious to one of ordinary skill, that the two ends of the fiber would not parallel as one connects the fiber to whatever device it is to be used in. It would have been obvious to wind the Cocito fiber onto a spool; as the spool rotates, the first end of the spool would rapidly change its orientation - and for some period of time, the ends would not be parallel.

Claim 31: since Applicant has the same wavelength and the same sort of glass that Cocito has, it is deemed that they would have the same internal transmission.

Claims 29-30 it would have been obvious to have the composition/index homogeneous, otherwise it would not be able to maintain the light in the waveguide. It would have been obvious to have each glass of the Cocito substrate to be as homogenous as possible - with no new or unexpected results. It is clear that the refractive index of the Cocito invention is an important parameter. One would know that if the index is something other than what it is suppose to be, that the device would not effect the optical signal in the manner in which it is intended.

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Claims 32-33: See Cocito at col. 2, lines 64-66. However, it does not indicate what wavelength the change in index is. The Office does not have the facilities to test such. It would have been obvious to expect that the change in index at 633 nm meets the values claimed - because Cocito disclose a value three times that of the minimum claimed, and because Cocito does what Applicant does. Alternatively, it would have been obvious to one practicing the Cocito method, to treat the glass so the index change is as disclosed - for all wavelengths - because Cocito discloses that such a change is possible - and because the more of a change, the better the waveguide can focus.

Claims 35-36 it would have been obvious to perform routine experimentation to determine what type of laser works best - with no new or unexpected results. Alternatively, the various known lasers are equivalents.

Claim 16-19, 42-45, 25,27-31, 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkins 5287427.

Claim 16: The invention is disclosed in the paragraph spanning cols. 5-6 and figure 3. Atkins' glass is a "bulk glass substrate" in as much as Applicant's invention is. There is no indication as to whether the glass is hydrogen loaded prior to the step of hydrogen loading. It would have been obvious to use glass that was not hydrogen loaded prior to the Atkins step of hydrogen loading, because such would have just been an extra step of hydrogen loading that would have just added extra cost. Alternatively, it



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would have been obvious that the glass was not hydrogen loaded, because if it was loaded already, there would be no point in loading it again.

The Atkins cladding comprises "the silica based material". It is noted that the claim does not preclude some portions of the cladding to be made from other compositions.

Claims 17-18: layer 32 has a substantially homogenous composition/index. Alternatively, it would have been obvious to have the composition/index homogeneous, otherwise it would not be able to maintain the light in the waveguide.

Claim 19: It would have been obvious to have each glass of the Atkins substrate to be as homogenous as possible - with no new or unexpected results. It is clear that the refractive index of the Atkins invention is an important parameter. One would know that if the index is something other than what it is suppose to be, that the device would not effect the optical signal in the manner in which it is intended.

Claim 42, there is not indication of the size of the waveguide or the substrate. However, it would have been obvious to make the waveguide as small as possible, so that one can make as many waveguides on the substrate as possible. Also, because the thinner the waveguide, the thinner the layer 32 has to be, and the less, material has to be created - which results in reduced time and material costs.

Claim 44: see col. 4, line16 which teaches to use another dopant besides germania.

Claim 25: In addition to how Atkins is applied to claim 16: Atkins doesn't disclosed how the focused light is focused. It would have been obvious to use a lense

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to focus the light, because by definition, anything which causes light to be focused is a lense.

Claim 27: The end faces shown in 3 are planes that are not parallel to the tunnel

Claim 28: Figure 3 shows only one waveguide. It would have been obvious to write multiple waveguides in the device, so as to be able to carry three times as many signals - with no new or unexpected results. Any straight waveguide could be considered to be in a vertical plane - this plane would be separate from the other waveguides in layer 32 of Atkins' figure 3. Alternatively see figure 6: Any one waveguide 62 is in a vertical plane. The plane is separate from the other cores. The waveguides are cladded partially by the composition and partially by air. They are within the interior.

Claim 31: since Applicant has the same wavelength and the same sort of glass that Atkins has, it is deemed that they would have the same internal transmission.

Claims 29-30 : it would have been obvious to have the index/index homogeneous, otherwise it would not be able to maintain the light in the waveguide. It would have been obvious to have each glass of the Atkins substrate to be as homogenous as possible - with no new or unexpected results. It is clear that the refractive index of the Atkins invention is an important parameter. One would know that if the index is something other than what it is suppose to be, that the device would not effect the optical signal in the manner in which it is intended.

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Claims 35-36 it would have been obvious to perform routine experimentation to determine what type of laser works best - with no new or unexpected results.

Alternatively, the various known lasers are equivalents.

Claim 43: see how claim 42 is addressed.

Claim 45: see how claim 44 is addressed.

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### ***Response to Arguments***

It is argued that the rejections are overcome because of the bodies not being hydrogen loaded. The prior art methods also start out with bodies that are not loaded with hydrogen - but include a step of hydrogen loading. The claims are comprising in nature and are therefore open to steps which load hydrogen to the bodies which have not been loaded previously.

The arguments regarding claim 28 are moot in view of the new way the art is applied.

Re Cocito: it is argued that Cocito doesn't read on claim 25 because the core is cladded on two sides by the fiber cladding (i.e. material that isn't the same material as the core). The claims do not preclude that part of the cladding is also of another material. AS long as the core is cladded to some degree by the interior composition. See the rejection.

As to claims 40-45, see the rejections of the new claims.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

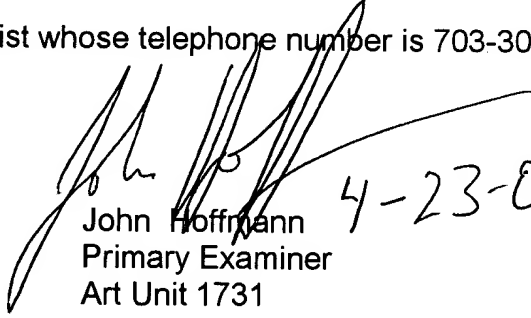
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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is 703-308-0469. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7115 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



John Hoffmann  
Primary Examiner  
Art Unit 1731

4-23-04

jmh  
April 23, 2003